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THE EFFECTS OF COUNSELOR REINFORCEMENT ON A STUDENT'S NEGATIVE RESPONSES.

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THE SIMULATION OF A DESIRABLE COUNSELING PROCESS WITH EMPHASIS ON SYSTEMATIC COUNSELOR REINFORCEMENT OF NEGATIVE SELF-REFERENCE STATEMENTS BY STUDENTS WAS REPORTED. THE OBJECTIVE WAS TO DEMONSTRATE THAT DEFINITE MEASURABLE COUNSELING PROCEDURES COULD BE EXPERIMENTALLY TESTED AND HAVE PRACTICAL CONSEQUENCES. THE VERBAL OPERANT CONDITIONING PARADIGM WAS EMPLOYED IN AN ATTEMPT TO ANSWER SEVERAL QUESTIONS--(1) CAN THE FREQUENCY OF NEGATIVE SELF-REFERENCE STATEMENTS BE MODIFIED BY VERBAL REINFORCEMENT IN A QUASI-COUNSELING SITUATION, (2) WILL SCHEDULES OF REINFORCEMENT PRODUCE DIFFERENT EFFECTS, AND (3) WOULD SUBJECTS RESPOND DIFFERENTLY TO THE SAME SCHEDULE OF REINFORCEMENT. A FUNCTIONAL RESEARCH DESIGN PERMITTED A FOCUS ON INDIVIDUAL BEHAVIOR OF SUBJECTS. RESULTS AFTER 3 MONTHS INDICATED THAT REFLECTION (PARAPHRASING) WAS NOT A REINFORCING STIMULUS WHEN MADE CONTINGENT UPON A NEGATIVE SELF-REFERENCE. IT WAS SHOWN THAT COUNSELOR REFLECTION OF NEGATIVE STATEMENTS HAD NO UNDESIRABLE EFFECT AND SEEMED TO CONTRIBUTE TO A DECLINE OF SUCH STATEMENTS. (GC)

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FINAL REPORT
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U. S. DEPARTMENT OF
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Project No. 6-8027
Contract No. OEC-2-6-068027-0027

Charles E. Snellgrove, Jr.

September 1966

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Florida State University

Tallahassee, Florida

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To my wife, goes a special debt of gratitude for her many contributions in both time and effort.

INTRODUCTION

Problem

The problem was the specification and measurement of certain aspects of the counseling relationship. The primary concern was an attempt to determine which of several types of action by the counselor produced expected (undesirable) behavior in the client. By manipulating the counselor's behavior in a controlled situation the net effect on the client was determined.

Specifically, the client behavior investigated was the verbal response class of negative self-reference statements. The independent variable was positive reinforcement of negative client self-references, chosen to simulate adventitious reinforcement observed to occur in the counseling process.

By investigating the tendency of some counselors to reinforce negative client statements, the possible deleterious effects of such methods are established. The problem is highly significant for counselors at all educational levels since the application of proven techniques or the avoidance of harmful procedures can be of value to those seeking to improve their methods. This study was an investigation of a negative variation of one possible technique a counselor may use.

Theoretical Foundations

Traditional counseling methods have been based on the idea that the presenting problem was merely a symptom of some underlying disorder. Treatment focused on discovering the "cause" of the symptoms. This is essentially analogous to physical medicine and is appropriately called the medical or disease model. This conception has led to the postulation of numerous psychic entities which supposedly determine overt behavior.

The alternative to this approach is the psychological or behavioral model (Ullmann and Krasner, 1965). Maladaptive behavior is believed to be learned and

therefore, subject to modification via learning principles. This eschews the idea of psychic determinants. What brings about the need for counseling is the learning of inappropriate behaviors. This approach has come about for primarily two reasons: first, as a reaction to the mentalism of the medical model; and second, as a form of counseling-therapy to replace it.

A number of criticisms have been leveled at the medical model. Probably one of the more well known is that of Eysenck (1961) who says, "all methods of psychotherapy fail to improve on the recovery rate obtained through ordinary life experiences and non-specific treatment." Krasner (1964) criticizes the uncertainty and inefficiency of the psychotherapy "log jam." Counseling has also been criticized because of its close relationship to psychotherapy. Strong (1964) suggests that because the counseling interview is essentially "reciprocal verbal behavior between two people," perhaps attention should be focused on verbal behavior instead of traditional dynamic factors.

These criticisms point up the need for accurate description and measurement of the counseling relationship. Butler (1953) states that "the behavior territory of counseling must be mapped as it is done in the best psychological investigations." He further points out the need to remedy the "basic lack of an organized set of observations of what happens during psychotherapeutic sessions."

Numerous writers have recently begun to explore the possibility of using a behavioral approach in helping people to deal with their problems. Brammer and Shostrom (1960) discuss its implications for counseling concluding that it has promise for the future. Michael and Meyerson (1962) discuss "A Behavioral Approach to Counseling and Guidance" in a special issue of the Harvard Educational Review devoted to an examination of guidance. Weitz (1961) stresses its importance, suggesting a redirection of behavior into more productive and satisfying channels as a basic guidance function. Strong (1964) reviews the application of verbal conditioning techniques to counseling. Patterson (1963) says "The counselor is attempting to influence the behavior of the client--this is obvious; otherwise he wouldn't be engaged in counseling." Shoben (1963) identifies psychotherapy as an attempt "to direct changes in human behavior" emphasizing the therapist's role as a behavior model. If guidance is to take full advantage of the behavioristic model, it must have a closer

relationship with the behavioral sciences (Shoben, 1961). Rogers (Rogers and Skinner, 1956) agrees that "in client-centered therapy, we are deeply engaged in the prediction and influencing of behavior, or even the control of behavior." He later notes (Rogers, 1961) that in counseling, conditions are established by external control which are followed by internal control by the individual. Krumboltz (1964) contrasts traditional and behavioral approaches to counseling making a strong case for the latter.

The foregoing literature makes explicit the need for an investigation of the counseling relationship in terms of behavior modification. Since the most prominent overt behavior in a counseling session is verbal, this area of investigation has received the greatest attention. Skinner (1957) proposes that the same principles which apply to animal behavior might also apply to verbal behavior. That is, the verbal behavior might be divided into response classes and studied in a manner similar to that of animal responses. This has been demonstrated by Hildum and Brown (1956), Spivak and Parajohn (1957), Hartman (1955), Daily (1953), Cohen, Kalish, Thurston and Cohen (1955). Krumboltz and Thoresen (1964) and Ryan and Krumboltz (1964) have reported successful investigations using reinforcement techniques in a counseling situation to modify client decision-making and information-seeking behavior.

Related Research

In recent years, there has been increasing application of conditioning procedures to behavior disorders (Grossberg, 1964). One such technique is verbal conditioning.

Studies of verbal conditioning began with the work of Greenspoon (1951, 1954, 1955) in the early 1950's. A great deal of research followed as shown in reviews by Krasner (1958), Salzinger (1959) and Greenspoon (1962). Krasner (1965) discusses the clinical implications of verbal conditioning and its relationship to traditional psychotherapy. A number of studies have investigated the various verbal components of the therapy-counseling situation.

Recent investigators have been using schedules of reinforcement in the modification of verbal behavior. Kanfer (1954) found frequency of reinforcement to be a critical variable in the acquisition and extinction of a verbal response class. McNair (1957), Solley and Santos (1958),

and Kanfer (1958) report successful investigations using schedules of reinforcement.

Verplanck (1955) found that statements of opinions increased as a consequence of verbal reinforcement. Verbal agreement responses were used to modify attitudes in a survey by Hildum and Brown (1956). Insko (1965) also modified attitudes through verbal reinforcement. Waskow (1962) examined the extent to which selective responding by a therapist would function as a reinforcer of content or feeling aspects of a subject's communication. Findings indicate some effect on content aspects. Following Verplanck's conversational procedures, Centers (1963) obtained an increase in opinion and information statements. In a semi-structured counseling session, decision-making behavior was successfully reinforced and it was found that this behavior generalized to a non-counseling situation (Ryan and Krumboltz, 1964).

The effect of reinforcement on negative responses has also been the subject of investigation. Southwell (1962) conditioned hostile verbs in neurotics and normals. His results indicate that conditioning occurred as a function of experimenter reinforcement and that verbal reinforcement was generally more effective than non-verbal reinforcement. Meyer, Swanson, and Kauchack (1964) obtained an increase in hostile verbalizations at grade levels 4 and 6 using verbal approval as a reinforcer.

One of the more relevant response classes to be investigated is that of self-reference statements. Many counselors feel that the verbal aspects of the interview are mainly concerned with the client's discussion of himself and that successful counseling involves a change in attitude as expressed by an increase in positive self-reference statements (Raimy, 1948). To a large extent, this position is maintained by "client-centered" counselors.

Salzinger and Pisoni (1958) examined the effect of verbal agreement on the output of self-referred affect statements during a clinical interview with schizophrenics. It was found that self-referred affect statements increased as a consequence of verbal reinforcement and that differences in interviewers or sources of reinforcement had little or no effect. A similar study was carried out by Salzinger, Portnoy, and Feldman (1964) in which self-referred affect statements were again conditioned in schizophrenics. Verbal assent was found to be an effective reinforcer for self-reference statements in a study of Adams and Hoffman (1960). Babbitt (1962), in an

attempt to produce attitudinal changes toward the self by means of verbal conditioning, found conditioning effects with one group reinforced for positive self-references using paraphrasing and verbal agreement as reinforcers. Merbaum (1963) examined the effectiveness of three classes of verbal reinforcers; non-commital expressions, mild positive expressions, and reflection of feelings. In a series of clinical interviews he found reflection of feelings to be significantly more effective in conditioning positive and negative self-references. A later study by Merbaum and Southwell (1965) showed paraphrasing of content to have a stronger reinforcing effect than merely echoing the subject's affective self-reference. An experimental investigation of the effects of four psychotherapy techniques was conducted by Adams and Frye (1964). It was found that self-reference statements were increased by interpretive statements and minimal social reinforcement. Reflection and hostile statements decreased personal references. Results indicate that different phenomena of verbal behavior observed by various schools of psychotherapy, may be a function of different techniques employed. Rogers (1963) produced a significant increase in negative self-reference statements by reinforcing with simple verbal agreement. Negative self-reference statements were also reinforced by Gonzer and Sarason (1964) using several verbal agreement cues at random. They obtained a slight increase in the emission of such responses. Powell (1965) found reflection to be an effective reinforcer for negative self-references.

Although a wide variety of response classes have been successfully manipulated, there have been occassional failures to achieve conditioning. Krasner's (1958) review of verbal conditioning identifies 12 studies where the reinforced behavior either did not increase significantly or was no more than in a control group. Kanfer (1962) suggests that such instability may be due to a variety of concurrent controlling stimuli which reduce the relationship between the reinforcer and the response class. Lubin (1965) takes the position that verbal conditioning is a more elusive phenomena than was first supposed. In his investigation of differences in conditioning effects, he concluded that failure to condition occurs through a failure to optimize the parameters of the reinforcement situation.

Friedman (1964) was unable to verbally condition positive attitudes to a questionaire of color preference following avoidance conditioning of neutral color stimuli. Cole (1965) reinforced negative statements in a counseling

analogue. The group reinforced for negative statements about a neutral concept conditioned while the group reinforced for negative statements about the self-concept actually showed a decrement in response rate. Ullmann, Krasner, and Knowles (1965) found that favorable attitudes toward medicine could be enhanced by verbal reinforcement but under similar reinforcement conditions unfavorable attitudes were unaffected. Cahoon and Jenrich (1965) suggest that verbal conditioning is our most powerful research and conceptual tool for a better understanding of complex interview interactions. They make a plea for further research, present controversies notwithstanding.

The Ince (1965) study, on which the present research is based, is the only investigation to date employing a functional research design. All of the studies reported in the literature have employed a factorial or actuarial design. The functional design has the advantage of permitting a study of changes in the verbal behavior of the subject as a consequence of systematic reinforcement and the measurement of such changes over time. This research is a logical extension of a former study and an attempt to relate behavioral research to the counseling situation.

Objectives

The objective was to demonstrate the definite measurable counseling procedures could be experimentally tested and have practical consequences. Of primary concern was the extent to which certain types of counselor behavior might produce undesirable behavior in the client. Specifically, an attempt was made to simulate a desirable counseling process with the exception of the systematic reinforcement of negative self-reference statements.

As with most operant conditioning studies there were no specific hypotheses to be tested. Instead, several basic questions were asked:

1. Is positive verbal reinforcement powerful enough to modify the verbal behavior (negative self-reference statements) of individuals in an interview setting, simulating a counseling relationship?

2. To what extent will the different reinforcement schedules produce different effects on the verbal behavior of the subjects?

3. To what extent will there be differences in responding between subjects on the same schedule of reinforcement?

METHOD

Subjects

Eight undergraduates at Florida State University were selected for participation in the experiment. These included one male and seven females. Subjects were volunteers who were aware of the time involved and agreed to daily attendance until completion of the experiment. A stipend was given for participation at the rate of $1.00 per session. Subjects' age range was 19 to 21 years representing all college levels except the freshman. Selection was on the basis of interest and availability. These people were selected as subjects because it was hoped that the results would be applicable to a college population.

Each subject was seen individually for one-quarter hour five days a week until the experiment was completed. This time period seemed feasible since previous research (Ince, 1965) indicates that the highest frequency of response occurs during the first 15 minutes of each session. In addition, a pilot study has shown that one-quarter hour sessions are sufficient to demonstrate the experimental effects and yet short enough to avoid such confounding variables as boredom, monotony, and awareness of the artificiality of being a volunteer counselee.

Subjects were told that a study was being made to find out how college student's views change from day to day as a result of being in a college setting. They were told that it was the day to day changes that were important. These instructions provided the subjects with a rationale for talking and daily attendance. Questions about the nature of the study were answered by saying that the results would be useful in learning more about counseling. Each experimental session was a free-operant situation in which students could talk about whatever they chose within the limits of the general instructions. All subjects received essentially the same instructions.

Subjects were aware that their responses were being recorded as a means of collecting data and that such recordings were reviewed only by the investigator. They were told that each interview was considered confidential

to insure the integrity of volunteered informations. It was stated that general information about the interviews collectively would be made known but not specific information supplied by each participant. In addition, assurance was given that there would be no invasion of privacy and that interviewees would remain anonymous.

Design

For each subject an initial base rate of responding was obtained. During this time no reinforcement was given for anything the subject said. Silence by the experimenter was explained by saying that in the past it had been found best when the student did all of the talking at first. This operant period lasted until a stable rate of responding had occurred. While there is no rule to follow in selecting a stability criterion, Sidman (1961) suggests that the criterion be based on three things; the phenomenon being investigated, the level of experimental control that can be maintained, and long term study of "steady state" behavior. With these considerations in mind, stability was judged to have occurred when subjects' responses were within a range of five responses over a four day period. As in all operant studies, each individual was his own control.

Following the operant period, the method of successive approximation was used to bring the subjects to the point where schedules of reinforcement might be introduced. First, continuous reinforcement (CRF) was used for all statements beginning with "I"; then for statements beginning with "I" and containing negation (no, none, not, nothing, etc.). This was the final response class to be investigated--negative self-reference statements. When a stable rate of responding had been reached on CRF, two subjects were placed on a fixed ratio-2 schedule of reinforcement. When the response rate began to decline they were again placed on CRF in an attempt to recover the higher rate. This was unsuccessful and both subjects were placed on extinction during which time no reinforcement was given. The remaining five subjects tended to reach a level of response stability which was essentially the same as the stability level of the operant period. In order to verify the apparent ineffectiveness of the reinforcer, an extinction period was begun. With three of these subjects, a second attempt was made to reinforce (CRF) the response class. This was followed by a second extinction period. One of the original

eight subjects withdrew from school during the first CRF period of successive approximation.

The reinforcement was reflection (paraphrasing) which has been shown to be reinforcing by Verplanck (1955), Merbaum (1963), Adams and Frye (1964), Merbaum and Southwell (1965), and Powell (1965). At times when it would have been necessary to interrupt by breaking into subject's speech in order to give reinforcement, simple agreement cues (uh-huh, good, head nod, etc.) were used. These have been shown to be reinforcing by Rogers (1960), Southwell (1962), Portnoy and Salzinger (1964), Gonzer and Sarason (1964), and Ince (1965). There are times when it was clearly inappropriate to interrupt subject's speech in order to paraphrase. The pilot study showed this to be awkward and detrimental.

Data and Instrumentation

The experimental room contained a desk and two chairs. A microswitch (80511-CE, Electrical Specialties) mounted on a wooden board was located under the desk. The experimenter operated this microswitch by foot. It was connected to a 6-digit electric counter (99 R 9011 Lafayette) and a midget stepping relay (MER-115 AC Guardian). Each foot tap by the experimenter registered one digit on the counter and at the same time advanced the stepper on the relay. The counter was housed in a sound insulated wooden box. The relay was wired to a terminal strip and both fastened to an aluminum chassis. This was mounted inside a steel box insulated with acoustic fiberglass.

The stepping relay was wired to a small red light bulb so that a given number of taps on the microswitch turned on the light for about 1 second. This was located so that it was visible only to the experimenter. When using a fixed ratio schedule of reinforcement, the light acted as a signal to the experimenter that the required number of responses had occurred. The light actually flashed one response before the required number so that the experimenter could reinforce immediately upon the next emission of the critical response. A tape programmer (LVE 1319FC) was also wired to the light bulb in order to program the desired fixed interval and variable interval schedules.

A tape recorder (T-1500 Wollensak) was used to record the subject's verbalizations and the experimenter's reinforcements. This acted as a check on the counter.

To all appearances, the experimental room was as any other counselor's office. The foot switch and signal light were not visible from the subject's chair. The tape programmer, relay, and counter were located in an adjoining room. The tape recorder was located in a central recorder bank which served all of the counseling offices.

Analysis

Analysis consisted of identification and evaluation of modifications in the frequency of the response class as a consequence of programmed reinforcement. A simple frequency count was made of the emission of the critical response class for each subject. The total frequency for each session was plotted graphically. This procedure showed the total number of critical responses per subject, per day. By comparing each session with the preceeding session, the effects of reinforcement were determined. Intrasubject and intersubject comparisons were made.

This method of identifying behavior change has come to be regarded as standard procedure in operant conditioning research (Skinner, 1953; Ferster and Skinner, 1957; Sidman, 1961).

RESULTS

Figures 1 through 8 show the total number of responses made by each subject (S) during each experimental session. This method of organizing data illustrated the change in relative rate of response for each experimental condition. With the exception of Ss 2 and 8, all subjects showed a decrease in response rate over the course of the experiment. This points up the fact that conditioning did not occur. The fact that the response rate continued to decline during periods of continuous reinforcement (CRF) indicated that the subjects' verbal behavior was not under the control of the reinforcing stimulus.

Subject 2 showed some increase in response rate during the shaping period (CRF) and the fixed ratio (FR) reinforcement period. The FR period, however, appeared to be unstable and when the response rate began to decline, CRF was again employed. The response rate stabilized at about the same level as that of the first CRF shaping period. The increase for this subject was so slight that conditioning could hardly be said to have occurred.

Figure 8 was the only subject to show a consistent increase in response rate over a period of 22 experimental sessions. The data suggested that conditioning might have occurred during the CRF shaping period had this subject continued to participate.

The sequence of experimental conditions was largely a function of the extent to which each subject showed an increase in total responses per session as a consequence of programmed reinforcement. As a result, three sequences were employed after the first period of continuous reinforcement (CRF).

Subjects on the first sequence (Fig. 1 & 2) showed a slight increase in total response during the CRF period. A fixed ratio schedule of reinforcement was begun where reinforcement was delivered for every 2 responses. The response rate showed a gradual decline and continuous reinforcement was again employed. The response rate recovered slightly, then began to decline once again. In Fig. 1, stability occurred at a level approximately 50% lower than that of the operant period. Figure 2 shows less variability. Response rate over the entire experiment appeared to be relatively stable. In both cases the introduction of reinforcement effected only a slight, temporary increase in response rate. During extinction the rate of response increased for subject 1 (Fig. 1) and remained about the same for subject 2 (Fig. 2).

Figures 3, 4, and 5 illustrate the second sequence of experimental conditions. Response stability on continuous reinforcement occurred at about the same level as during the operant period. At that point, reinforcement was withdrawn. This extinction period continued until the response rate again stabilized. The level of stability was then below that of the two preceeding periods. Reinforcement was again introduced on a continuous schedule. Stability occurred rather rapidly with no change in response rate. Final extinction resulted in no change for 2 subjects (Fig. 3 & 4) and a slight decrease for the remaining subject (Fig. 5).

The final sequence (Fig. 6 & 7) was similar to the preceeding one except that the experiment was terminated after the first extinction period. Like the three preceeding subjects, the response rate stabilized at or below the level of the operant period. The reinforcement was then withdrawn. Stability occurred below the rate of the CRF period. Time did not permit a second attempt to reinforce the critical response class.

Fig. 1-8. Total number of responses per experimental session for all subjects, one through eight respectively.

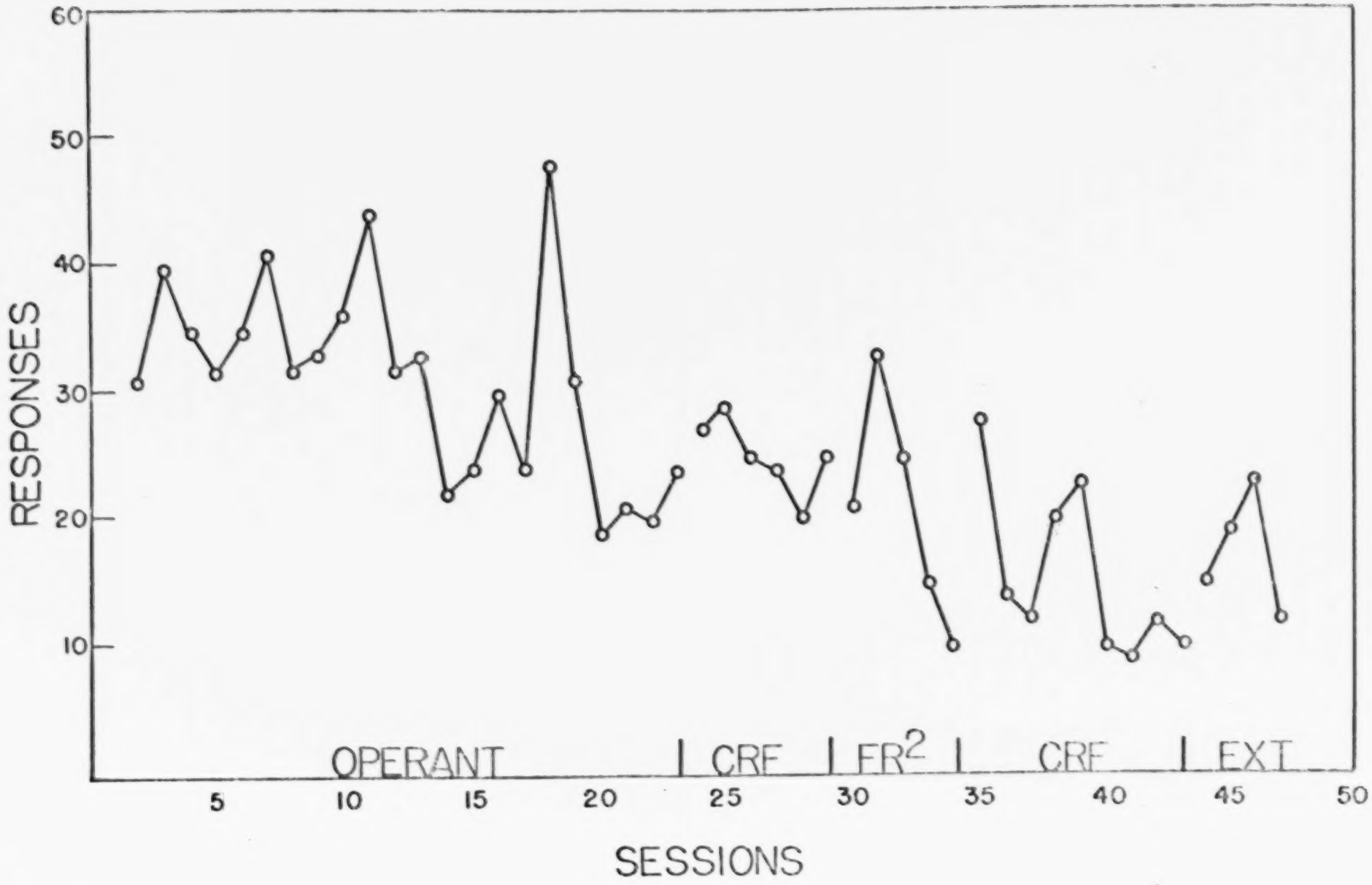
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Fig. 1

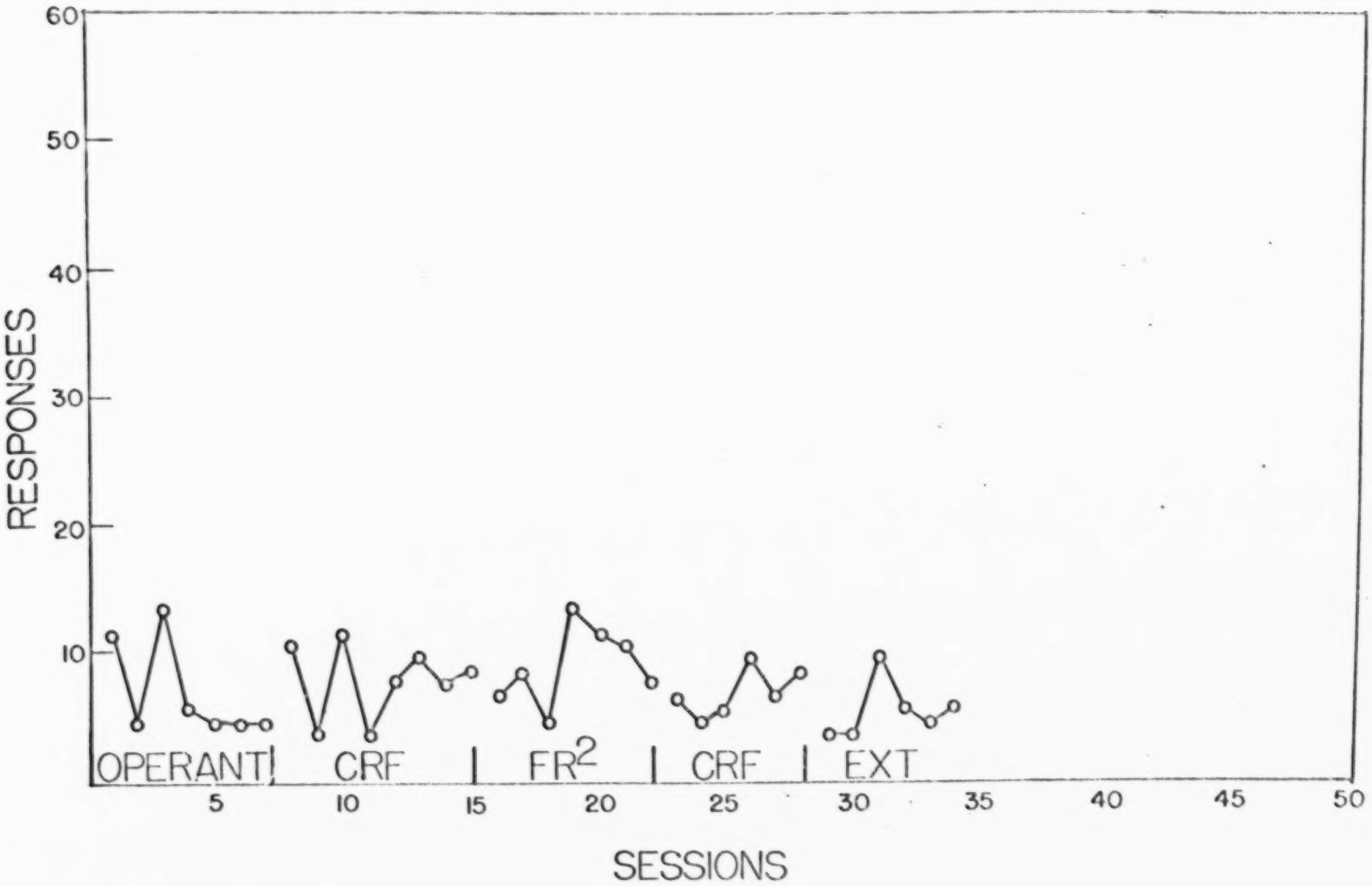
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Fig. 2

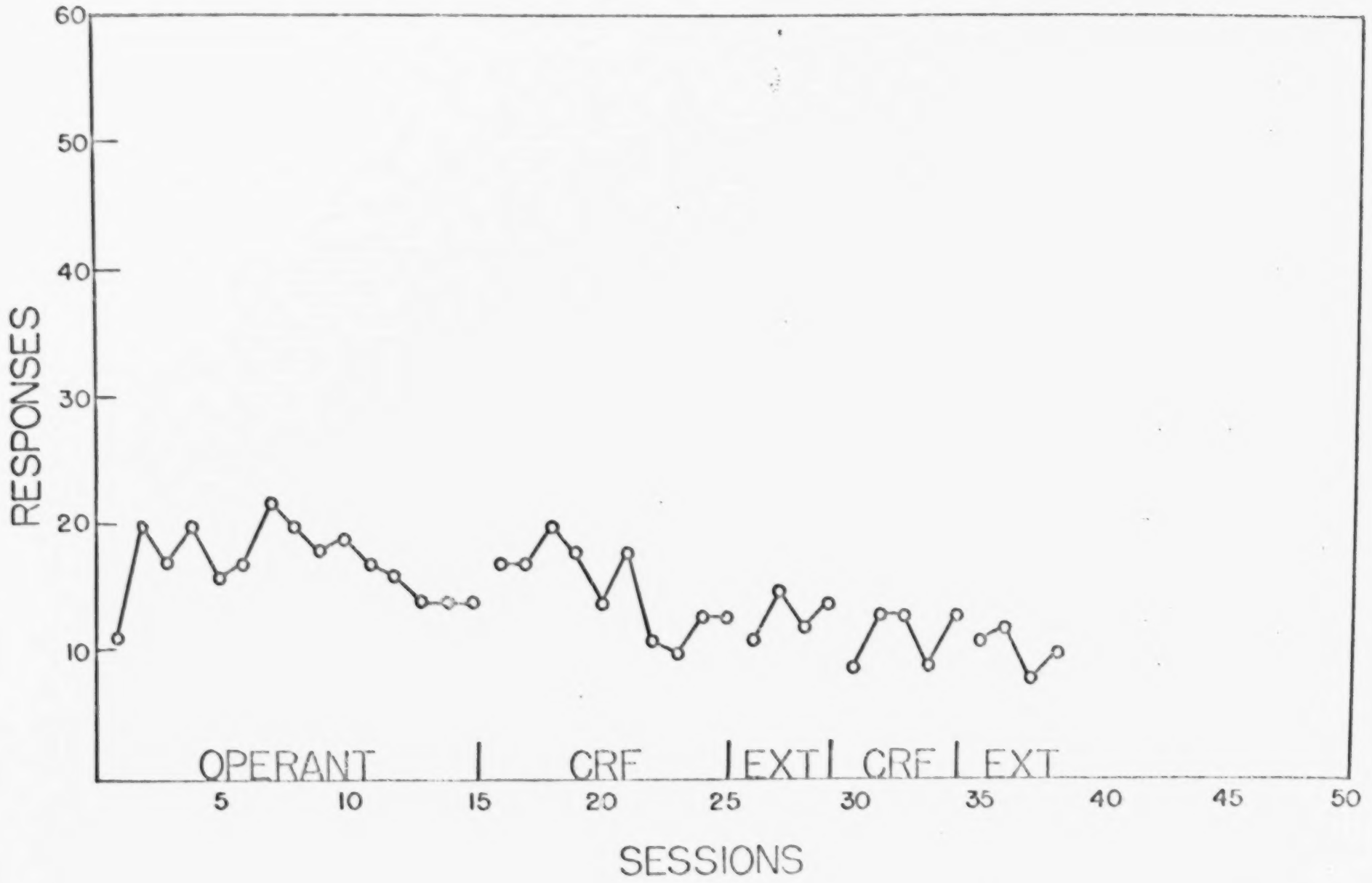
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Fig. 3

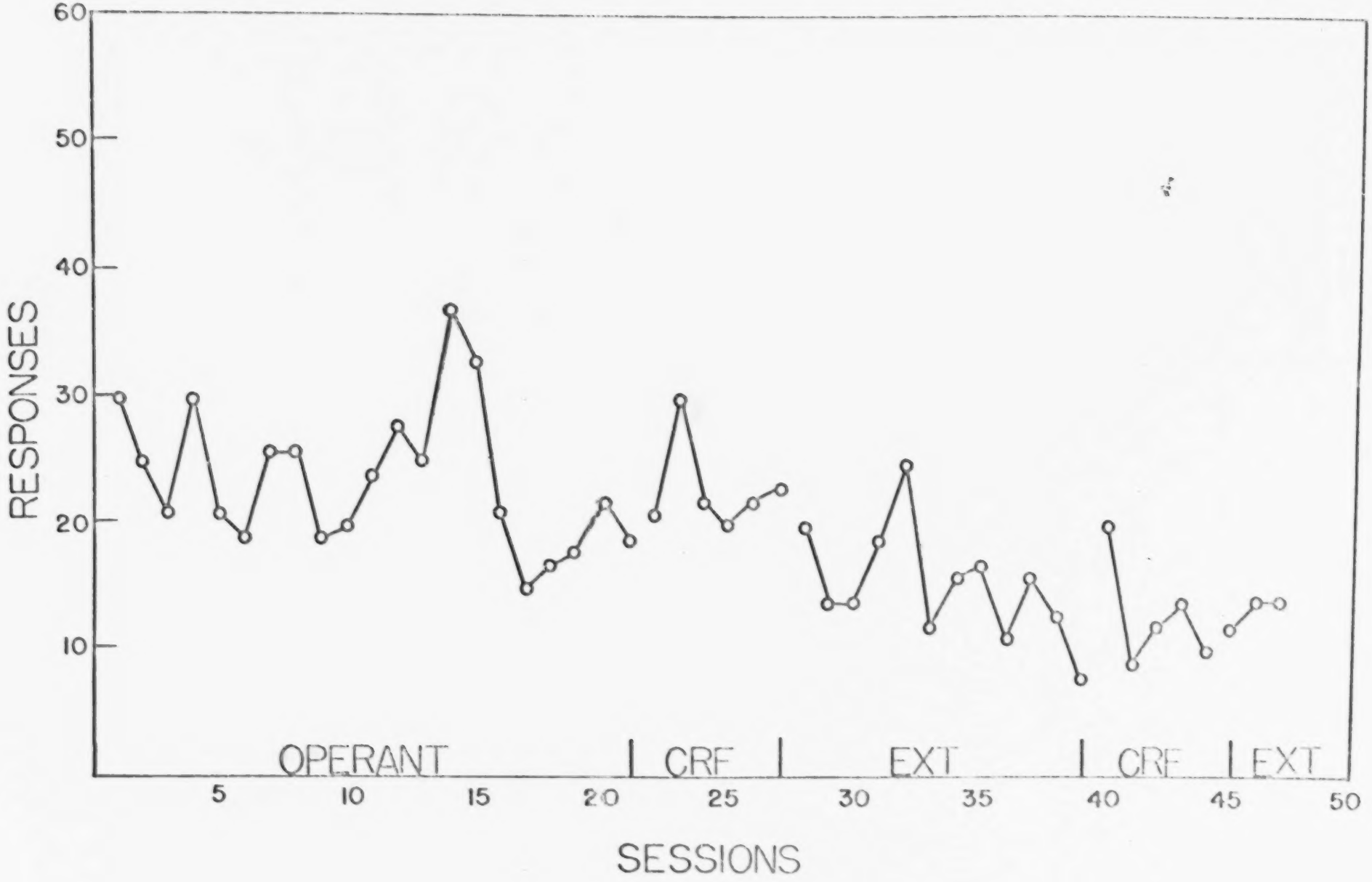
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Fig. 4

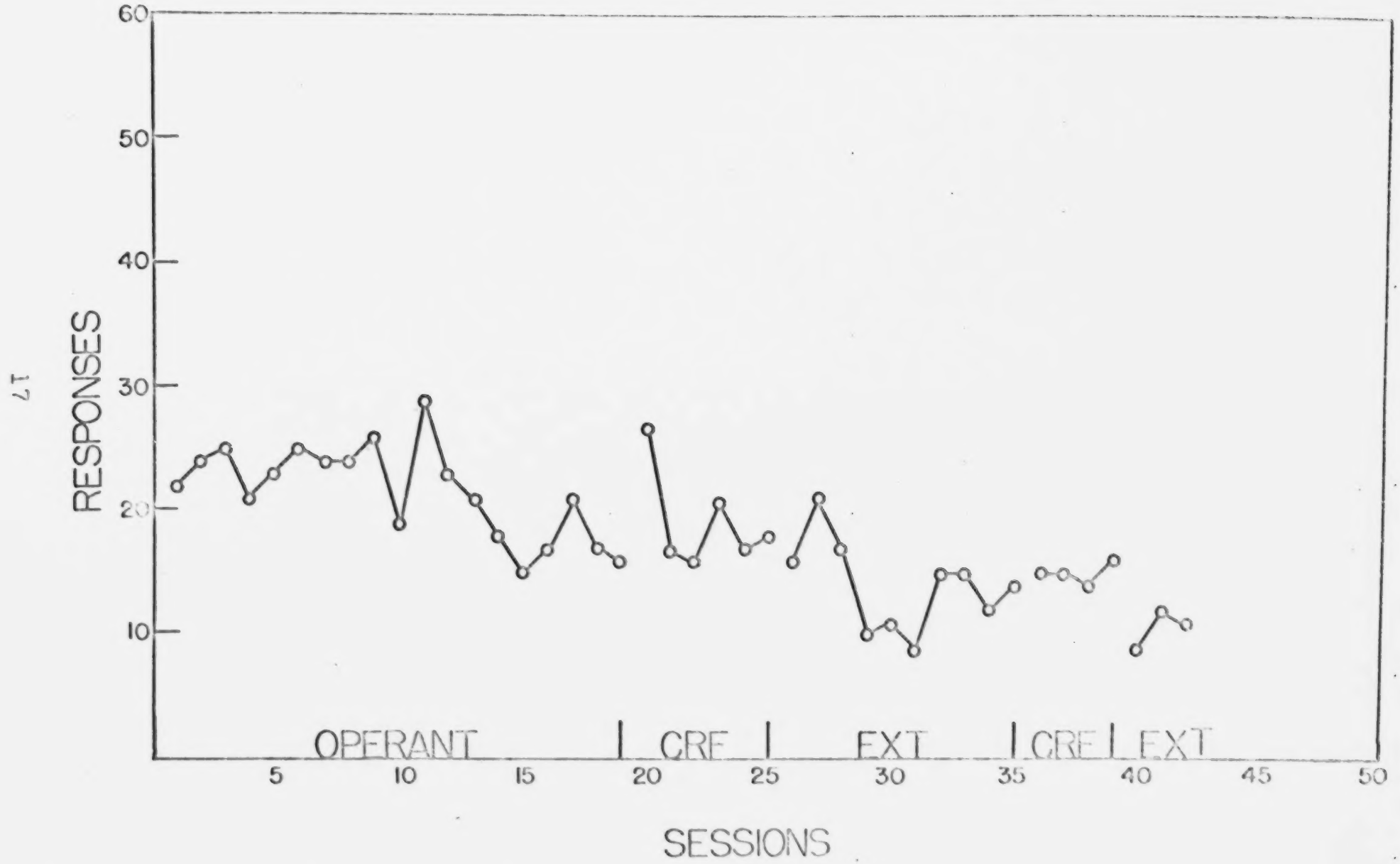
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Fig. 5

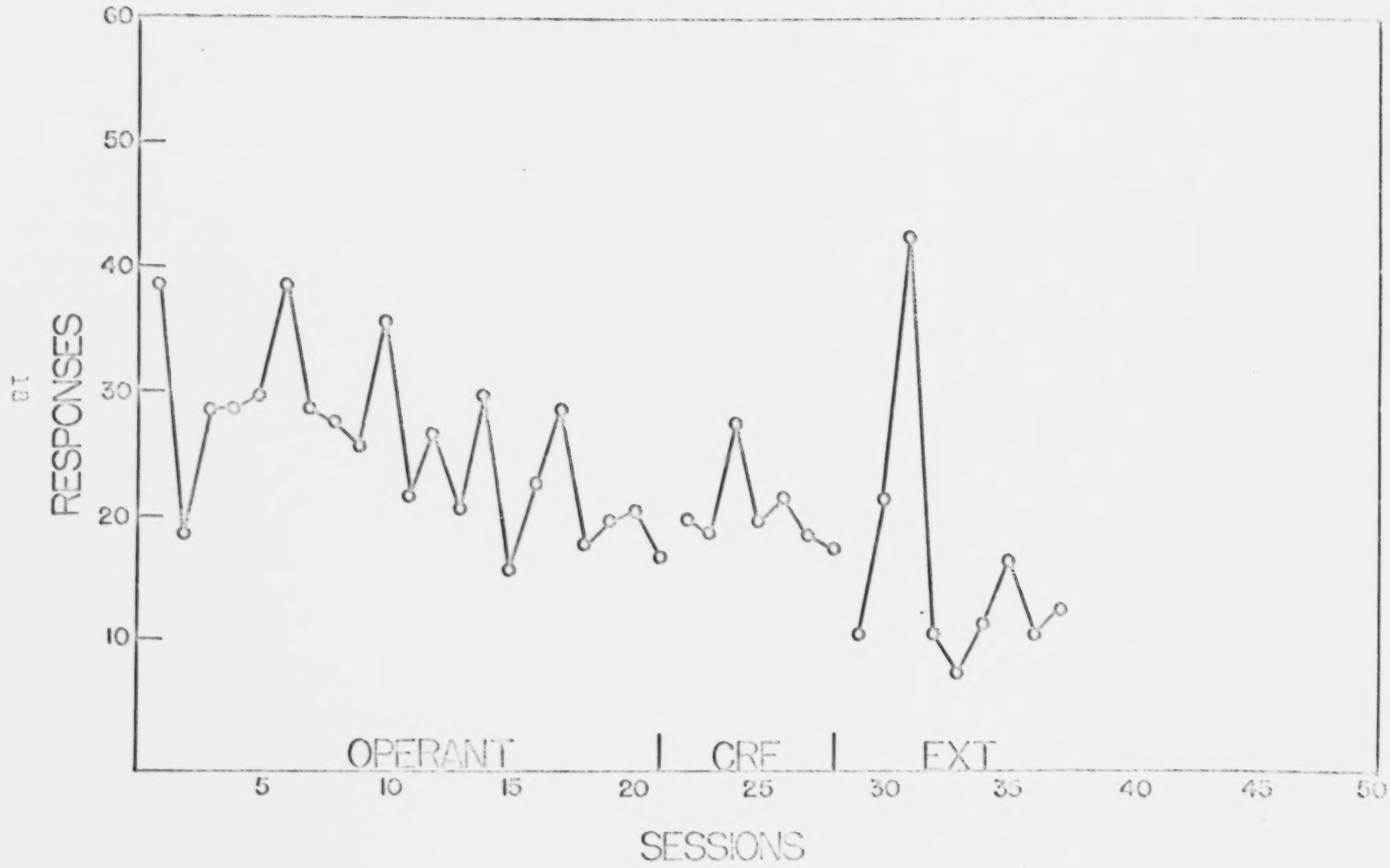
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Fig. 6

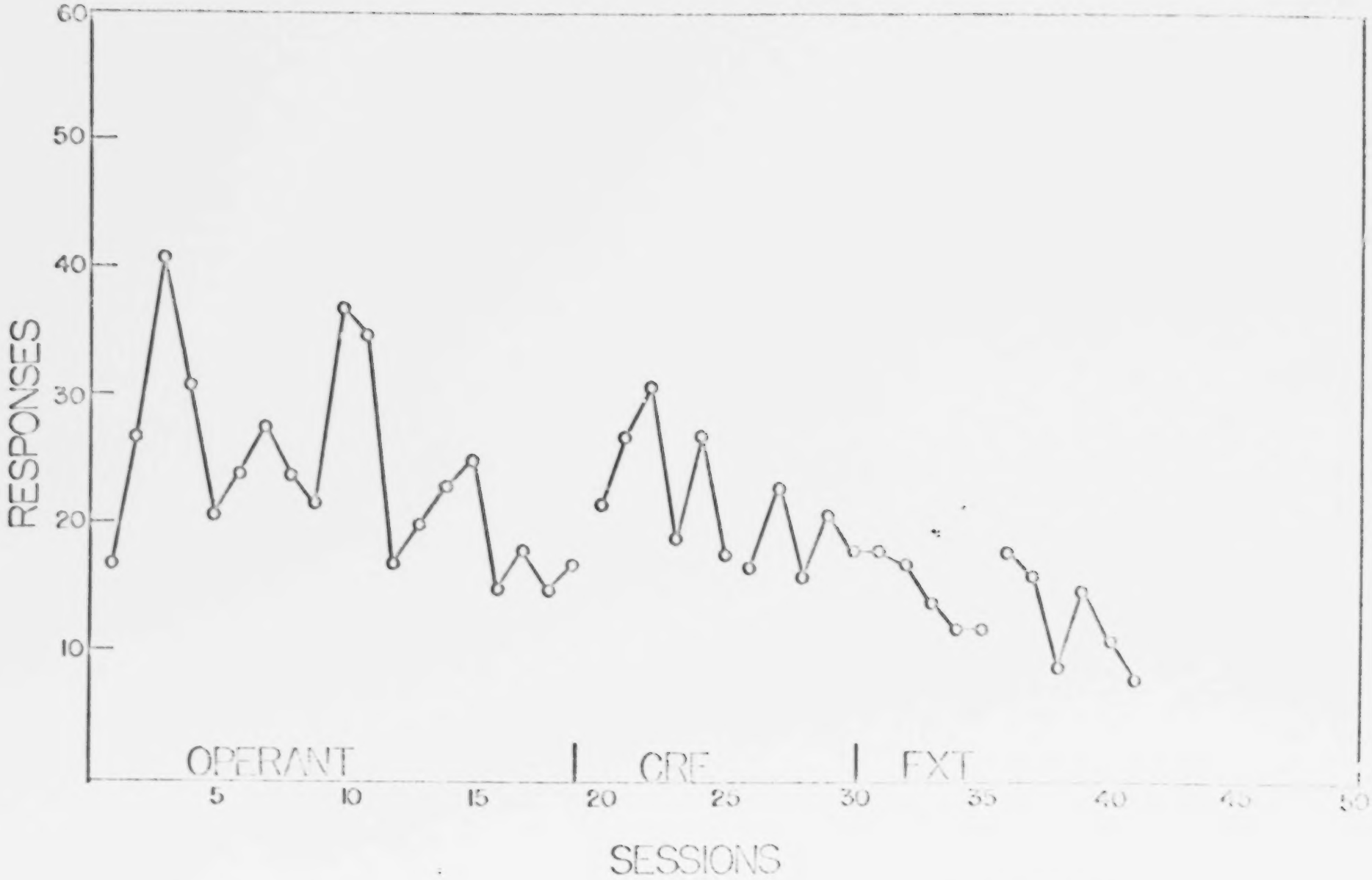
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FIG. 7

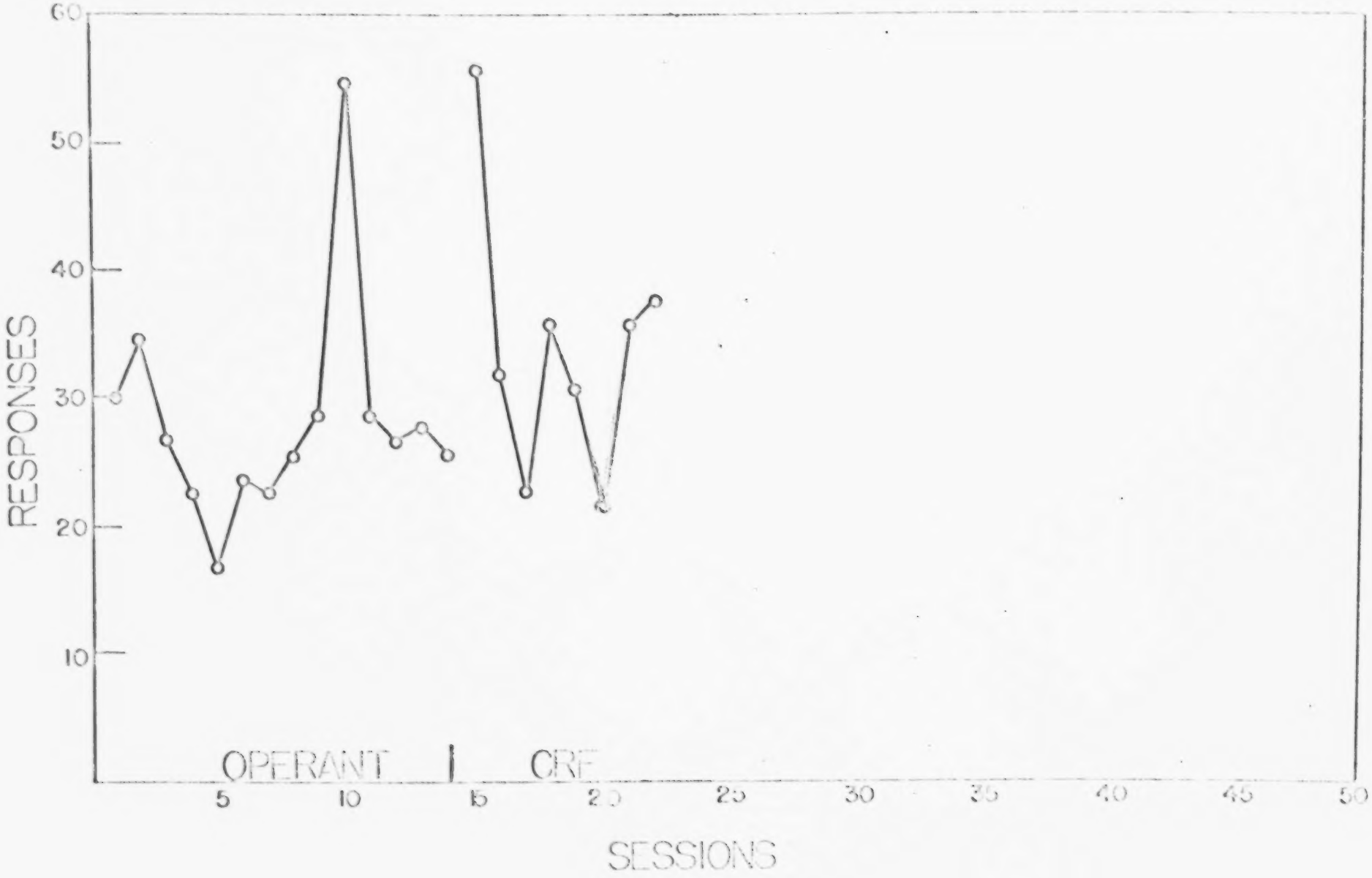
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Fig. 8

The subject whose responses are shown in Figure 8 would have been placed on a variable interval (VI) schedule of reinforcement had she continued to participate. This was the only subject to show an increase in response rate as a consequence of reinforcement.

These three sequences of experimental conditions are illustrated in Fig. 9, 10, & 11. The data points in each experimental period represent the total responses during the last four sessions. In most cases these were the four response stability criteria which marked the end of a period. These figures tend to show the relative position of the response rate for each experimental condition.

Intersubject comparison showed that while the general pattern of responding was similar for subjects in each group, there was considerable individual variability. In Fig. 9, S1 showed a wide range of variation while S2 remained relatively stable.

The Fig. 10 sequence showed S3 to be relatively stable while Ss 4 and 5 showed pronounced decreases in stability levels. This pattern was also found for Ss 6 and 7 of Fig. 11. The conditioning effect was clearly illustrated for S8.

In terms of the level at which the response rate stabilized, there appeared to be two distinct areas. For most subjects the response rate was at or about the same level at the end of the operant and CRF shaping periods. In subsequent periods, stability occurred at a much lower level. The exceptions were S2 (Fig. 9), S3 (Fig. 10), and S8 (Fig. 11). This further indicated a general decline in total responses as the experiment progressed. Regardless of the sequence of experimental conditions, reinforcement did not bring about a sustained increase in response rate.

Figure 12 shows the mean number of responses per subject for each experimental condition. The three groupings are by sequence of experimental conditions as in Fig. 9-11. The advantage of graphing means was to facillitate a comparison of intersubject variability. It can be seen that Ss 3, 4, and 5 generated similar patterns of mean responses under the same experimental conditions. This was also true of Ss 3-7. Subjects 2 and 8 were atypical; S2 being relatively unaffected by the change of experimental conditions and S8 showing evidence of a conditioning effect.

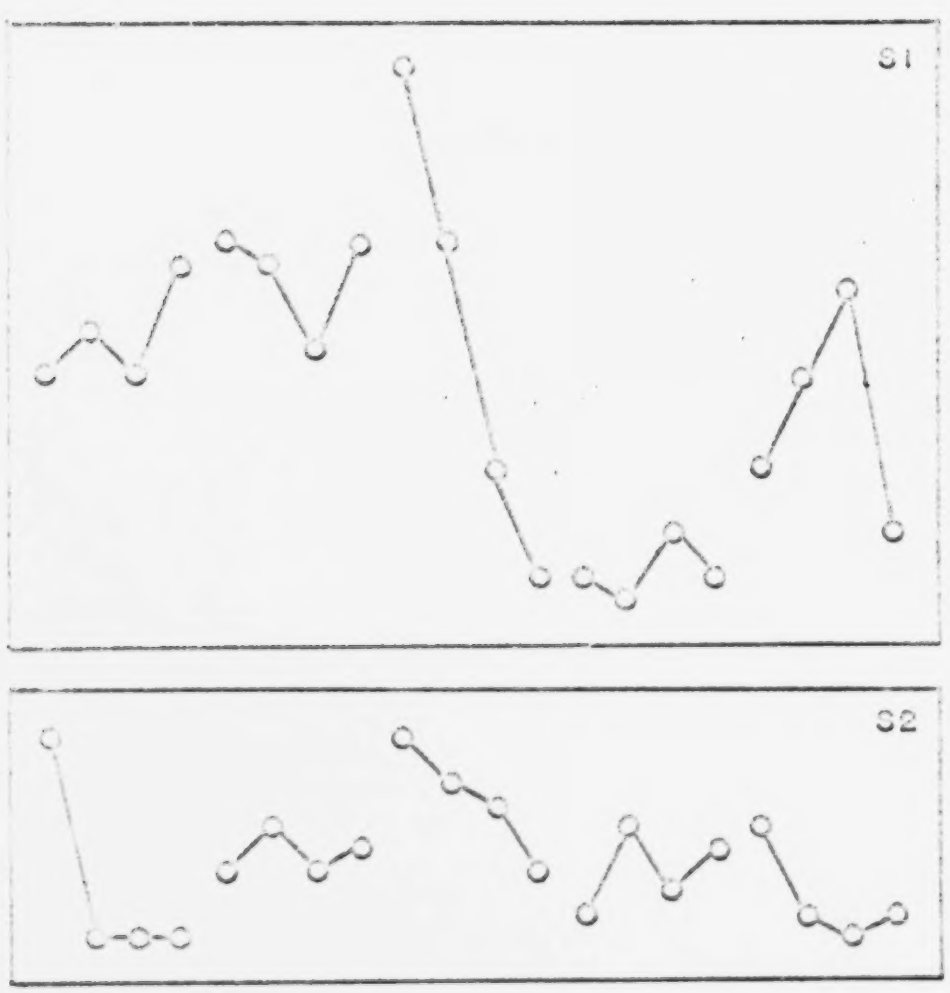


Fig. 1. Relative position of response rate for S-1 and S-2 during the last sessions of each experimental condition.

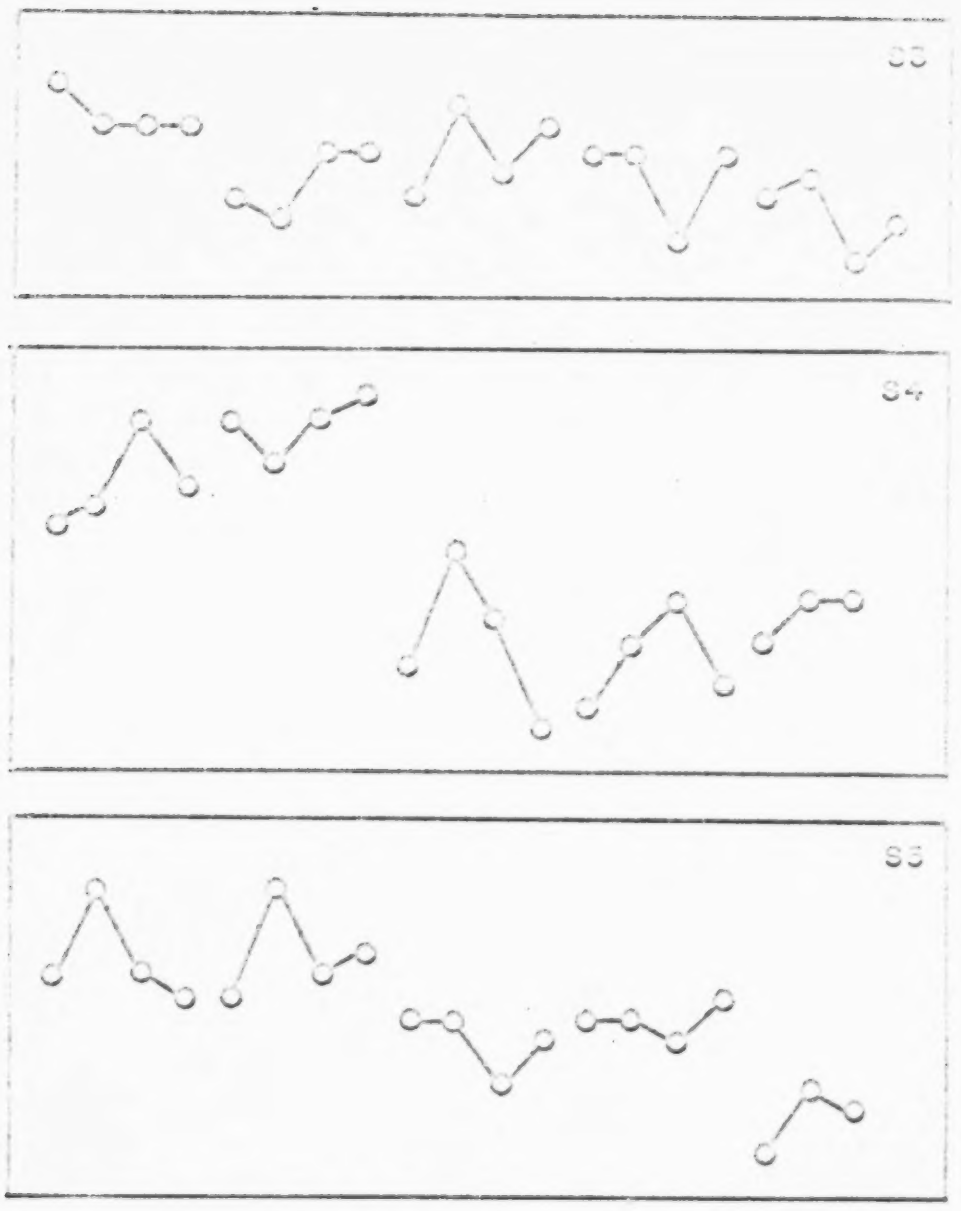


Fig. 1. Illustrative location of response data for [illegible] and 5 during the last sessions of each experimental condition.

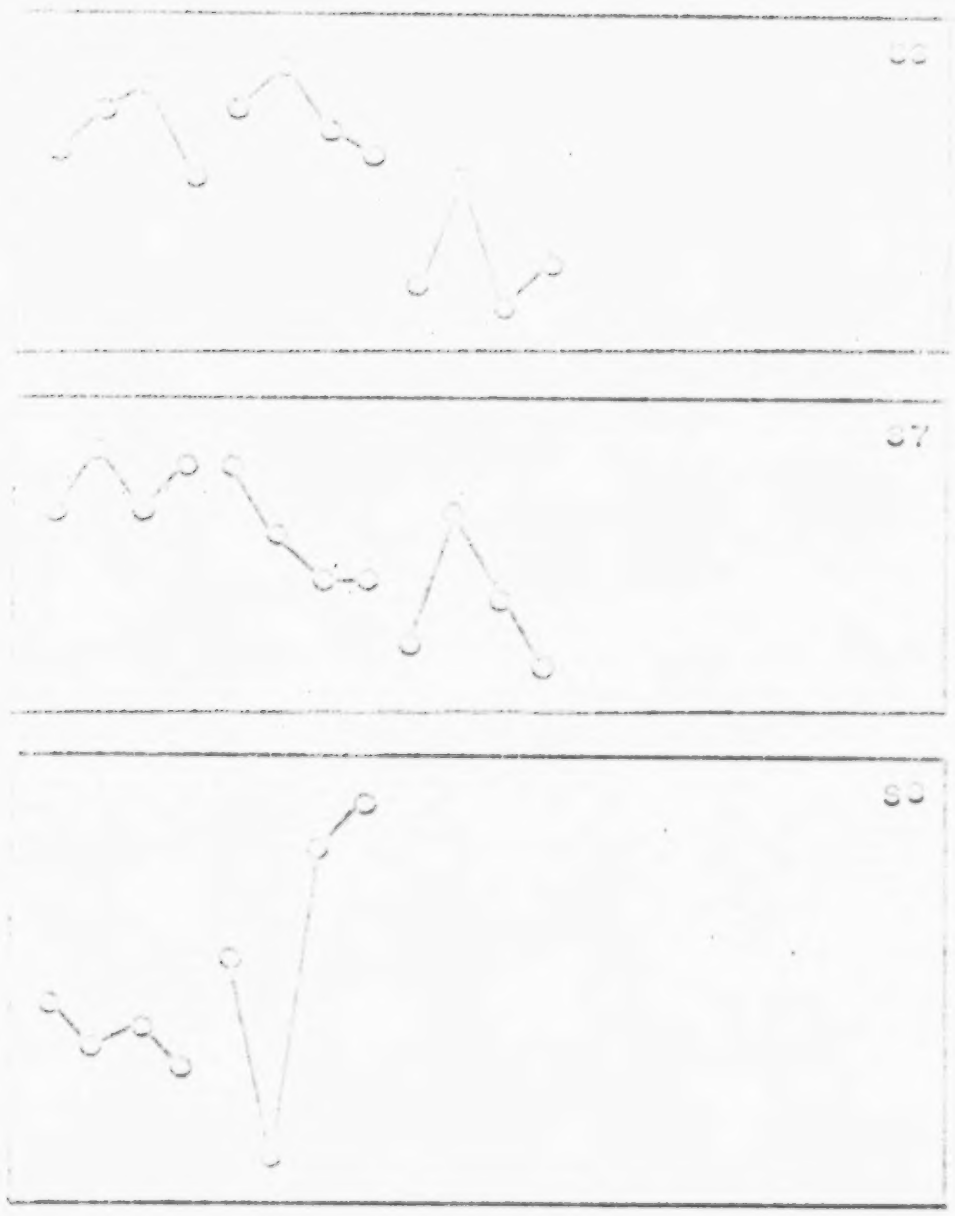


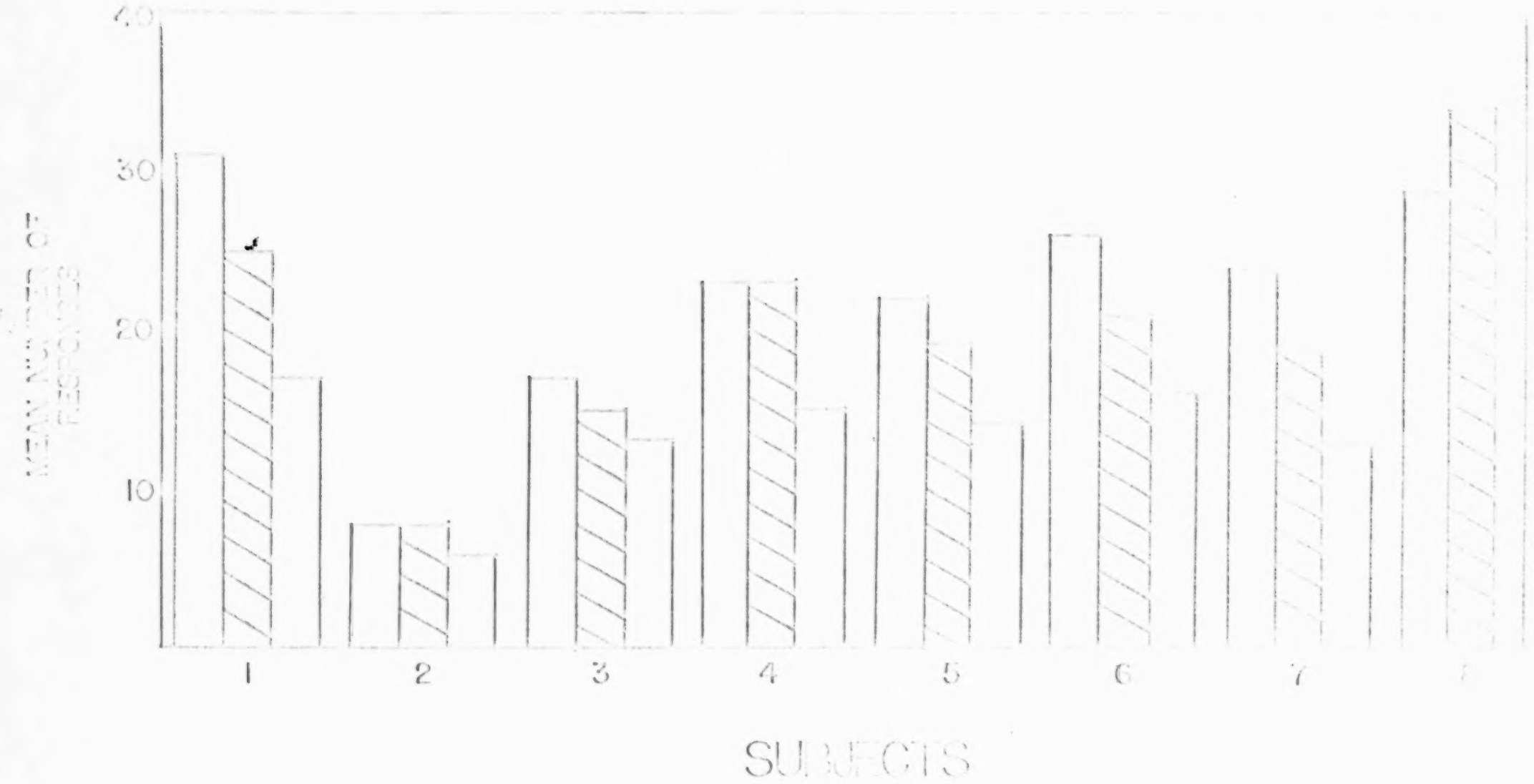
Figure 2. Illustrative depiction of response data for [illegible] and least deviators of each experimental condition.

Fig. 12. Mean number of responses per experimental session for all subjects. Grouping is by sequence of experimental conditions.

○ S1
△ S2
30
20
10

○ S5
△ S4
□ S6
30
20
10
OP
EXT

○ S9
△ S7
□ S8
30
20
10
OP
EXT


40
30
20
10
MEAN NUMBER OF RESPONSES
1
2
3
4
5
6
7
SUBJECTS

The mean number of responses for the operant, first reinforcement, and first extinction periods are shown in Fig. 13. This permits a graphic comparison of all subjects and amplifies two recurrent facts: the failure to achieve conditioning and the decrement in response rate.

DISCUSSION

This experiment was performed in order to provide information about counseling which might be used in answering the questions stated earlier. A careful consideration of each question appears to be the logical point from which to begin an extensive examination of the results.

Is positive verbal reinforcement powerful enough to modify the verbal behavior (negative self-reference statements) of individuals in an interview setting, simulating a counseling relationship?

The data indicated that verbal reinforcement is powerful enough to modify client negative self-references but that this modification is in the form of a decrease in responding. The effects of reinforcement were more that of suppressing the critical response class than conditioning. The fact that negative self-reference statements did not increase during the reinforcement period indicated that reflection did not function as a positive reinforcer.

If the assumption is made that the typical undergraduate student does not wish to become more negative in his appraisal of himself, then any method of confronting him with such behavior would result in a suppression of that behavior. When a reflection is made on a negative self-reference statement, the counselor is identifying and calling to attention the client's negative verbal behavior. It would not seem rewarding to be made aware that one is speaking poorly about himself. The presumed effect of reflection in counseling is to convey understanding, recognize feelings, facillitate insight and help to clarify the client's behavior. If reflection functioned as such in this experiment, the effect could well have been one of punishment rather than reinforcement. It is doubtful that the student likes to be consistently confronted with his self-negativism.

Cole (1965) found results which tend to support this point of view. Two groups of 10 subjects each were

seen in a counseling interview. The group reinforced for negative statements about a neutral concept showed a conditioning effect while the group reinforced for negative statements about the self-concept showed a decrement in response rate. The point of particular relevance is that in both the Cole study and the present research, conditioning did not occur when the object of the reinforced behavior was oneself.

The response classes of positive and negative self-reference statements have been the subject of considerable research. Some investigators report success while others have been unsuccessful. In fact, this has been true of virtually all response classes. These discrepancies preclude any definitive conclusion about the conditioning of verbal behavior in a counseling-therapy situation. It is one thing to achieve conditioning of hostile verbs with beginning psychology students or shape opinions by phone, and quite another to alter meaningful verbal behavior in a counseling situation.

Lubin (1965) recognizes the problem of partial success and suggests that the parameters of the reinforcement situation operate as do those of primary reinforcement. His study was particularly concerned with speed and consistency of reinforcement as related to differences in conditioning effects.

In the present research, reinforcement was given immediately after the emission of a critical response. With very few exceptions, reinforcement was always reflection. Simple agreement cues were given only on occassions where it was felt that reflection would have a detrimental effect on the flow and content of the subject's speech. As for the consistency of reinforcement, very little can be said. It seems that a true reflection, like reinforcement, can be identified only by its consequences. There is no question that some variability occurred between attempts by the experimenter to reflect negative self-references. On the other hand, it is relatively certain that such statements were paraphrased. The extent to which the client perceived this as a reflection may have been another variable. Reflection (paraphrasing) can be considered a reinforcer only if it is a true and appropriate restatement with all essential qualities. This makes meaning implicit. In this attempt to modify verbal behavior, there is little doubt that such private experiences as the perception of meaning functioned as uncontrolled variables. One obstacle to the investigation of verbal behavior is that the consequences which maintain the verbal operants are usually difficult to specify.

Recently, numerous investigations have been carried out in an attempt to determine the necessary conditions for verbal conditioning to occur. Merbaum (1964), Merbaum and Southwell (1965) and Powell (1965) have shown that different types of experimenter responses have varied effects on subjects' verbal behavior. Reflection and paraphrasing have been found to be highly effective experimenter responses although, one study reports success with only negative self-references. The discrepancy between these findings and the results of this experiment might stem from a major difference in design. This research attempted, rather successfully, to simulate a desireable counseling process with daily sessions over a period of several months. Interview sessions over a shorter time span could understandably have a different effect.

The issue of subjects' awareness of the response-reinforcement contingency is another possible explanation for the failure to achieve conditioning. Speilberger and DeNike (1966) present evidence that in verbal conditioning, it is this awareness that is learned. Maltzmann (1966) recognizes the inadequacy with which cognitive psychology interprets reports of awareness in verbal conditioning. Numerous other writers have discussed the issue of awareness with evidence being presented in support of its necessity or irrelevance. In this present research, there was no attempt to assess awareness, however, all subjects reported complete naivete in regard to any purpose beyond the general instructions. With one exception, all subjects reported that within a week or so the sessions actually became a counseling or "catharsis" session in which they felt free to express themselves. All subjects reported that it had been a pleasant and worthwhile experience.

Recent investigations have also identified set as a major determinant of conditioning effects. The subjects reported that they had no idea what to expect beyond the general instructions. This absence of any set might account for their failure to become aware of the response-reinforcement contingency, as suggested earlier. Simkins (1963) studied the effects of preconditioning instructions, concluding that they affect awareness and learning. In a more recent study, Farley and Hokanson (1966) found that informational set had a significant effect on the level and rate of verbal conditioning. The differences in informational set might account for many of the discrepancies found in the literature and the failure of subjects in the present study to acquire the desired behavior.

A new direction in verbal conditioning research is the investigation of verbal habits. Clance and Dixon (1965) found that the type of verb used in a sentence had a systematic effect on the frequency of first person pronouns. This effect is presumably a verbal habit established prior to the experiment. They add that the effect is greater during acquisition than during the operant period. This could account for the negative difference between the response rate of the operant and first CRF shaping periods.

Matarazzo, Saslow and Pareis (1960) and Simkins (1963) have identified the response class as an important variable. In the case of self-reference statements, it is not an easy task to operationally define those that are positive or negative. The terms positive and negative appear to be relative to some arbitrary standard. When used to dichotomize statements about oneself, they imply emotional feelings which, like other private experiences, are not accessable to the experimenter. Positive self-references are usually defined as self-references which clearly contain no expression of the negative. This would include most self-reference statements. Suppose 20% was a figure arbitrarily selected to represent the negative portion of all self-references. To reinforce positive self-references would be to reinforce 80% of all self-references, according to the definition above. This percentage would be sufficient to show a conditioning effect. On the other hand, to reinforce negative self-references would involve only 20% of all self-references and the response class would extinguish. A self-reference statement as a group of words has no inherent positive or negative quality except as it might contain negation.. It has meaning only in the presence of a verbal community where this quality is largely conventional and highly subjective. The point, then, is that all self-reference statements constitute a natural response class while positive or negative self-references do not. This seems to be the most plausible reason for the ineffectiveness of the reinforcer. The decline in the response rate of negative self-references would be due to the extinction of the response class, all self-references.

In order to approach the second question it will be necessary to review the original research design. The following paragraph will provide a frame of reference for further discussion. It is a statement of how the experiment would have been conducted if conditioning had occurred.

> "Subjects will be assigned at random to three schedules of reinforcement: FR (fixed ratio), FI (fixed interval), and VI (variable interval). Two subjects will be assigned to each schedule with one subject each on fixed and variable interval schedules being run in reverse to point up possible sequence effects of the schedules. The number of values to be used on each schedule will be determined by the relative time period remaining after response stability is obtained at various phases of the experiment. Provisions will be made to program as many as three values on each schedule. The use of student volunteers restricts the duration of the research to a period coinciding with the school term. This, together with the requirement of response stability at successive levels, permits only a tentative time schedule."

The subjects were assigned to the schedules at the start of the experiment. Although one subject (S8) withdrew from school during the early stages of the experiment, this would have had no effect on the use of reinforcement schedules. The decision was made to eliminate the use of a VI schedule programmed in reverse. A table of values of progressions for generating VI schedules (Fleshler & Hoffman, 1962) was used in preparing the forward schedules. The Fleshler-Hoffman progressions are mathematically derived from a general equation in which the probability of reinforcement would remain constant as a function of time since the last reinforcement. This negates any sequence effect. As pointed out earlier, S8 had the highest rate of response and showed a conditioning effect. Had she continued, a VI 30" schedule would have been introduced.

To what extent will the different reinforcement schedules produce different effects on the verbal behavior of the subjects?

This question cannot be answered on the basis of the results obtained. The only schedule employed was a fixed ratio of two responses per reinforcement. Of the two subjects receiving this schedule, S1 generated a pattern of mean responses that was similar to the subjects on continuous reinforcement. The results for all subjects illustrated a steady decline in responding regardless of whether or not reinforcement was continuous or intermittent.

To what extent will there be differences in responding between subjects on the same schedule of reinforcement?

The striking similarity between the subjects receiving FR reinforcement was the pattern of response during the FR period. Both subjects responded initially with a slight increase followed by a steady decrease. Subject 1 decreased rapidly to a point well below the base rate of responding. Subject 2 decreased only slightly to the previous level of responding where he remained. This subject's performance throughout the experiment was characterized by strict adherence to the instructions. He frequently verbalized his concern about this. The fact that his response rate remained relatively stable indicated that he might well have been behaving on the basis of an informational set. His verbal behavior was probably under the control of the original instructions. The results show that it was not controlled by the reinforcing stimulus.

Operant Period

One of the initial problems was the extablishment of a baseline. An attempt was made to observe the behavior over an extended period of time in order to determine its characteristics. This served a two-fold purpose. First, it permitted the completion of transition states which often occur at the beginning of an experiment, i. e., adjusting to the experimental conditions. Second, it provided a basis for developing a stability criterion. The fact that there is no general rule for identifying stable behavior places the experimenter in a position of deciding how much variability can be tolerated without masking the experimental effects. If the manipulation of the independent variable produces a behavioral change, it can be described only by specifying the baseline from which it occurred (Sidman, 1961). After an extended observation of the operant rate, a four session sequence with limited variability appeared to be a realistic criterion. Clusters of total responses appeared in groups of 3 and 4 sessions with a range of 3-10 responses. A four session sequence with a range not exceeding 5 responses became the criterion.

Figures 1-8 illustrate the variability for each subject during the operant period. It can be seen that all subjects reached a stable rate of responding below the level of the first few experimental sessions. Subjects 1, 4, 6, and 7 show considerable intrasubject variability.

The graph points representing a peak number of responses for a particular session have no special significance. These sessions appeared to be just like any other except for the unusually high response rate. Responses for S2 varied over three sessions then stabilized. This initial variability appeared to be a transition period as discussed earlier. Subjects 3 and 5 showed considerable similarity during the operant period. The response rate of each varied only slightly from session to session with a rather uniform decrease in response rate. The fact that all subjects (except S2) decreased in total responses might have been due to the informational set brought about by the general instructions.

At first, subjects appeared to be making an effort to talk about themselves. This was characterized by superficiality and impersonal content of conversation. As the experiment progressed, the verbal behavior of subjects became personal, introspective and centered on self. They began to discuss matters of concern and quite often it would be necessary to interrupt in order to terminate the session. Many times subjects would ask advice even though they had learned that the experimenter would not respond. This silence by the experimenter caused some subjects to become irritated. This was associated with such complaints as "I can't think of anything to say" and "won't you help me." These eventually disappeared. Subjects would usually begin talking as soon as they came in and contine until time had expired. Negative statements such as the above quotations were included in the operant rate, although they were generated by the experimental situation and might have been artifacts. On the other hand, the subject of this research was the occurrence of negative self-reference statements under these conditions; that is, a quasi-counseling situation.

Reinforcement Period

In verbal behavior, it is extremely difficult to create a state of deprivation for a particular response class and, therefore, unlikely that a primary reinforcer will be found. Since the strength of a verbal reinforcer is acquired by association, it might be enhanced by pairing it with a strong social reinforcement. Simkins (1963) has suggested the use of pennies. Looking again at the graphs of subjects' responses (Fig. 1-8), an initial increase in responding can be seen for the CRF period. This was probably due to the experimenter's participation. That is, his silence during the operant period created

a certain amount of social deprivation. When he began to respond to subjects' verbalizations the effect was to reinforce all verbal behavior, regardless of what was said.

During the first three sessions reinforcement was given for all self-reference statements. In the remaining sessions, only negative self-references were reinforced. This shaping appeared to have had little effect and may have been unnecessary except for the smooth transition from numerous reinforcements of all self-references to the less frequent reinforcement of negative self-references. The behavior to be manipulated was already occurring and shaping was of dubious value.

The response rate of S8 was quite variable but increased over a period of 8 sessions. Subjects 3 and 7 gradually declined in response rate during the CRF period. Stability did not readily occur. The slope was similar to that of the operant period. For the other subjects, the response rate stabilized rather quickly. Subjects 1 and 2 stabilized above the operant level indicating a slight conditioning effect. These subjects had previously been assigned to an FR schedule of reinforcement which was then introduced.

The effects of fixed ratio reinforcement have already been discussed although an additional comment is in order. The very slight increase in responses during the CRF period created some doubt that the response rate would rise during FR reinforcement. Subject 1 had only 1 session in which the total responses were higher than during the CRF period. Subject 2 did not exceed the CRF period until the fourth FR session. Both began to decline after these peak sessions.

The second CRF period for S1 was extremely variable. A high response rate was recovered during the first session but was immediately lost. A second high point was followed by the lowest stability level of all periods. The continued ineffectiveness of the reinforcer was obvious and it was therefore withdrawn. The pattern of variability and decrease in response rate continued as in previous periods.

The performance of S2 was atypical in that it was relatively stable when compared with other subjects. The second CRF period was much the same as the first. Response stability occurred at about the same level with only slight variability. Subject 2 was the only individual who did not show a general decrease in response rate.

In the experimenter's judgment, S2 did not enter into a counseling relationship as did the other subjects. These characteristics might have been due to the controlling effect of the instructions and the cognitive nature of his verbal behavior.

Response stability occurred for Ss 3, 4, and 5 at a level no higher than that of the operant period and, with no increase in response rate, schedules of reinforcement could not be employed. In order to verify the apparent ineffectiveness of the reinforcer, an extinction period was begun. Continuous reinforcement was again introduced after stability occurred during extinction. There was essentially no change in response rate for all three subjects. This suggested the possibility that the operant level was false and that the first extinction period more closely approximated a true operant rate.

Extinction

The extinction period for S1 was marked by an increase in response rate. Subject 2 remained relatively stable showing little sesitivity to the change in experimental conditions. This was also true of Ss 3 and 4. Subject 5 had a three session period below the rate of the preceeding CRF period. Variability and a continued decline in response rate occurred for Ss 6 and 7. The extreme high session for S6 was brought about by depression. It was a one session effect (Fig. 6) characterized by considerable negative verbal behavior and crying. There were no indications, however, that this behavior was any more than a "normal" reaction to the stresses of academic pressure. In the strictest sense of the term, the absence of a conditioning effect precluded any extended discussion of behavior during extinction. This was merely a period during which no attempt was made to reinforce the response class.

General Observations

During the experiment several observations were made regarding subjects' verbal behavior, the counseling relationship, and the verbal conditioning effect.

Subjects often spoke as if they were merely expressing a stream of consciousness or musing over past experiences. Such verbal behavior gave rise to many incomplete statements; that is, sentence fragments which

were negative self-references but not negative self-reference statements. This was particularly a problem in identifying members of the critical response class.

The maintainance of negative verbal behavior appeared to be due, in part, to self-reinforcement. It has been suggested that one's own behavior is a significant aspect of his environment (Kanfer, 1965) and that awareness of such may effect the probability of subsequent behaviors. Observation of subjects during the sessions indicated an awareness of the content of conversation and the effect of this awareness on further speech. This appeared to be evaluative in nature since subjects would sometimes anticipate the experimenter's reactions to their statements.

With regard to the nature of the counseling relationship, the experimenter felt that all subjects except S2 behaved in much the same way as true counselees. These people were volunteers but they talked about problems much of the time. At the conclusion of the experiment most subjects felt that they had made positive gains in self-understanding.

All subjects were seen over a period of approximately 60 sessions but absences and tardiness reduced this number to some degree. The data show the net number of sessions per subject. The division of the summer school term into two parts proved to be a hardship condition insofar as it decreased the number of useable days and employed unusual class scheduling which was a factor in tardiness.

The verbal conditioning effect is somewhat of an elusive phenomenon, although there seems to be no doubt that the counseling process can be investigated through the use of verbal conditioning techniques. The further investigation of counselee verbal behavior may provide significant information on many aspects of the counseling process. The failures to achieve conditioning point up weaknesses in design and suggest a re-evaluation of current methodology. Further research is imperative.

CONCLUSIONS AND IMPLICATIONS

The data indicated that reflection did not function as a positive reinforcer when it was made contingent upon a negative self-reference statement. The net effect

was that no self-reference statements were reinforced, creating an extinction condition. This, in part, accounted for the rather uniform decrease in response rate. The major dterminant was the punishing effect of reflection which, when contingent upon a negative self-reference, became a negative stimulus.

The failure to achieve conditioning in a quasi-counseling situation indicated that adventitious reinforcement of negative client statements does not occur. There is some doubt that negative statements can be increased by verbal reinforcement in a counseling interview, and it is relatively certain that counselor reflection will not strengthen such behavior. On the contrary, reflection brought about a decrease in negative self-references. This not only supports current counseling practice but provides empirical evidence of the relationship between client statements and counselor responses. This exemplifies the fact that the behavioral model, on which the present study was based, was a conceptual framework within which counseling procedures can be experimentally tested.

It seemed that the research method employed had certain limitations. One of the most serious was the operant period during which a baseline was determined. The variability for each subject required an extended period of observation in order to select a stability criterion against which changes could be compared. On the other hand, an extended period of observation created an artificial condition in which the experimenter's silence began to affect the subjects' behavior. The characteristics of human behavior during an operant period are not fully specified as yet. Additional research is needed concerning the effects of prolonged silence by the experimenter, the feasibility of accepting a normal conversational period, and the pattern of variation associated with different response classes. Additional information about these problems might also be helpful in identifying true response classes.

One major difficulty in attempting a verbal conditioning study is the specification of the response class to be reinforced. In the present case of negative self-reference statements, there is good reason to suspect that the only common element is self-reference. The subjective nature of positivism or negativism is associated with emotional feeling and does not appear to be a characteristic of verbal behavior per se. The difficulty in specifying affect in behavioral terms points up the need for an investigation of the physiological (autonomic)

activation that is associated with patterns of verbal behavior. A measure of autonomic activity such as the galvanic skin reflex, might be employed. If some relationship could be found between negative self-reference statements and level of activation, the verbal conditioning paradigm would take on even greater significance as a counseling tool.

In addition to response class, informational set is another variable that warrants further investigation. The pre-experimental instructions have an unspecified effect which may vary from subject to subject. The different outcomes associated with a particular counseling technique might well be a function of the information the client has about counseling. This suggests the possibility of a standardized initial interview.

The pattern of partial success in attempts to condition verbal response classes was attributed to the effects of unspecified variables, the arbitrary nature of the response class, and methodological problems associated with the use of human subjects. It has been shown that one counselor technique, reflection, has no undesirable effect on negative self-reference statements. This fact tends to indicate that the verbal conditioning paradigm involves far more than the simple contingency of student-counselor responses, and makes explicit the need for further research. This research is another demonstration of the practical application of a behavioral model to counseling.

SUMMARY

This study was an attempt to simulate a desirable counseling process with the exception of the systematic counselor reinforcement of student negative self-reference statements. By investigating the tendency of some counselors to respond to negative client statements, it was determined to what extent such methods might produce undesirable client behavior.

The objective was to demonstrate that definite measurable counseling procedures could be experimentally tested and had practical consequences. The verbal operant conditioning paradigm was employed in an attempt to answer several basic questions. Can the frequency of negative self-reference statements be modified by verbal reinforcement in a quasi-counseling situation? Will schedules of

reinforcement produce different effects? Would subjects respond differently to the same schedule of reinforcement? A functional research design permitted a focus on individual behavior.

Eight undergraduates were seen daily for approximately three months. All subjects were given an operant period during which a baseline was obtained. This was followed by a reinforcement period. Reinforcement was reflection (paraphrasing) contingent upon a negative self-reference statement. Only three subjects showed an increase in rate of response. One withdrew from school. The remaining two were placed on a fixed ratio (FR) schedule of reinforcement. The other subjects were placed on extinction during which time no reinforcement was given. With three of these, a second attempt was made to reinforce negative self-references followed by a second extinction period.

It was found that no subjects acquired a sustained increase in response rate as a consequence of reinforcement. Of the seven subjects who completed the experiment only one failed to show a relatively uniform decrease in total responses per session.

Results indicated that reflection was not a reinforcing stimulus when made contingent upon a negative self-reference. This was attributed to the response class, informational set, and the problem of baseline stability. It was shown, however, that counselor reflection of negative statements had no undesirable effect. In fact, it seemed to contribute to a decline in such statements. An examination of the methodology employed and certain critical variables provided reasons for the partial success of verbal conditioning studies. Results identify problem areas in which further research is needed.

It was demonstrated that the effects of counselor reinforcement on a student's negative responses are not necessarily undesirable. In addition, evidence was provided in support of the behavioral model as a basis for counseling research.

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GLOSSARY

ACQUISITION Progressive increments in response-strength observed over a series of occasions on which the response is measured (Verplanck, 1957).

BASE RATE OF RESPONDING The ongoing behavior, or continuous and continuing performance of a single individual which serves as a baseline from which to measure the effects of experimental operations (Sidman, 1961).

CONDITIONING The strengthening of behavior which results from reinforcement (Skinner, 1953).

CONTINUOUS REINFORCEMENT (CRF) The experimental procedure of reinforcing a response each time it occurs (Verplanck, 1957).

EXTINCTION The operation of nonreinforcement. A response whose frequency has been decreased by nonreinforcement is said to have been extinguished (Sidman, 1961).

FIXED-INTERVAL SCHEDULE (FI) A schedule of intermittent reinforcement where the first response occurring after a given interval of time, measured from the preceding reinforcement, is reinforced (Ferster & Skinner, 1957).

FIXED-RATIO SCHEDULE (FR) A schedule of intermittent reinforcement where responses are reinforced upon completion of a fixed number of responses counted from the preceding reinforcement (Ferster & Skinner, 1957).

FREE OPERANT SITUATION A free responding situation in which the only restrictions placed upon the subject's behavior are those inherent in the laws of behavior (Sidman, 1961).

FUNCTIONAL DESIGN An experimental design in which the parameters of control are varied to generate a quantitative description of the interaction spectrum (Sidman, 1961).

METHOD OF SUCCESSIVE APPROXIMATION The process which includes the differentiation of new forms of response, and the development of appropriate stimulus control, so that a given response is generally emitted only upon an appropriate occasion (Ferster & Skinner, 1957).

OPERANT A term used to describe behavior which operates upon the environment to generate consequences. It is used both as an adjective (operant behavior) and as a noun to designate the behavior defined by a given consequence (Skinner, 1953).

OPERANT LEVEL The rate of occurrence of an operant response before the response has been experimentally reinforced (Verplanck, 1957).

OPERANT PERIOD The period of time during which no experimental restrictions are placed upon the subject's behavior (Sidman, 1961).

PUNISHMENT Presentation of an aversive stimulus contingent upon a response or the withdrawal of a positive reinforcer contingent upon a response. In both cases the behavioral effect is a short term response suppression.

REINFORCEMENT The operation of presenting to the animal in operant conditioning, after it has made a response (and therefore contingent on its occurrence), a reinforcing stimulus or of withdrawing a negative reinforcing stimulus (Verplanck, 1957).

REINFORCER Any stimulus which, when made contingent upon a response or class of responses, is followed by a modification in the frequency of occurrence in that response or class of responses.

RESPONSE (1) An instance of an identifiable part of behavior. (2) A class of such instances. In this sense, response is equivalent to operant (Ferster & Skinner, 1957).

RESPONSE CLASS A response class consists of a number of different responses which are similar to one another, in that the occurrence of one may be substituted for the occurrence of another (Salzinger, 1959).

SCHEDULE OF REINFORCEMENT A plan or procedure whereby the experimenter determines which one of a series of responses will be reinforced (Verplanck, 1957).

SHAPING Bringing a response under experimental control by the process of successive approximation.

STABLE RATE OF RESPONDING A state of responding in which the behavior in question does not change its characteristics over a period of time (Sidman, 1961).

STEADY STATE Behavior whose characteristics do not change for long periods of time (Sidman, 1961).

VARIABLE-INTERVAL SCHEDULE (VI) A schedule of intermittent reinforcement where reinforcements are programmed according to a random series of intervals having a given mean and lying between arbitrary extreme values (Ferster & Skinner, 1957).

VERBAL BEHAVIOR (1) Behavior involving the vocalization or writing of words, or response to spoken or written words. (2) Behavior whose reinforcement is contingent upon stimulation of and response by another individual (Verplanck, 1957).